Remarks

Claims 1-11 remain pending in this application after entry of this paper. Claims 6-7 and 9-11 are allowed. Claims 1-5 and 8 stand rejected under 35 U.S.C. 102(b) as being anticipated by Gu et al. (U.S. Patent No. 5,907,223). Applicants believe that the invention is patentable.

The invention involves an improved flourescent lamp electronic ballast that includes a power factor correction flyback circuit and an inverter ballast circuit. The invention further involves a number of detailed aspects usable in various combinations.

Claim 1 recites a flourescent lamp electronic ballast comprising a power factor correction flyback circuit and an inverter ballast circuit. The power factor correction flyback circuit is composed of a rectifier connected to a DC to DC flyback converter. The flyback converter includes a flyback transformer connected to a diode/capacitor combination. The flyback converter includes a switch used to switch the flyback transformer during operation to produce a flyback wave form that is rectified by the diode and results in a DC output at the capacitor. The inverter ballast circuit receives the DC output and inverts the DC output to an AC signal for operating the flourescent lamp.

Gu describes a two-frequency electronic ballast system having an isolated PFC converter. The PFC converter incorporates an isolation transformer, and a DC-AC inverter is provided on the secondary side of the isolation transformer. The switching frequency of the PFC converter can be significantly higher than the lamp current frequency. In the exemplary embodiment described by Gu, the PFC converter includes a DC-DC converter and a dither power factor correction circuit provided on the primary side of the isolation transformer.

Nevertheless, Gu fails to anticipate the claimed invention. Claim 1 specifically recites a power factor correction flyback circuit and an inverter ballast circuit in a specific

arrangement that overcomes problems in conventional ballasts such as those that use a hold-up capacitor or passive power factor correction (PFC) L-C filters on the input.

Gu, however, lacks a power factor correction flyback converter, and only describes a power factor correction circuit provided on the primary side of an isolation transformer. As claim 1 specifically recites an arrangement involving a PFC flyback converter, Gu fails to anticipate the claimed invention.

Regarding claim 1, the Examiner makes reference to Figures 3, 4 and 8-10; Col. 4, lines 40-67; Col. 5, lines 10-20 of Gu. Again, Gu does not involve a PFC flyback converter in the specific arrangement as claimed by Applicants. Figures 3-4 and 8-10 only show various configurations of the isolation transformer. The specification portion referred to by the Examiner only describes the PFC converter and incorporated isolation transformer. There is no suggestion by Gu of a PFC flyback converter in the particular combination claimed by Applicants. For reasons given, Claim 1 is believed to be patentable.

Claims 2-5 are dependent claims and are believed to recite further patentable subject matter.

Claim 2 specifically recites the rectifier receiving an AC input having a varying frequency and the rectifier having a sufficiently low input capacitive such that the rectifier output substantially takes the form of a rectified AC wave. The Examiner makes general reference to Figures 9 and 10 of Gu, but there is no suggestion therein of the specific arrangement involving a PFC flyback converter including a rectifier having the recited sufficiently low input capacitance.

Claim 3 recites transition mode operation of the flyback converter. Gu fails to suggest the claimed PFC flyback converter, let alone suggest any particular mode of operation in a particular circuit arrangement. The Examiner only generally refers to Figures 1-10 and there is no suggestion therein of this claimed subject matter.

Claims 4-5 recite specific details of a control loop configured to monitor the flyback transformer, and switch the transformer asynchronously to maintain energy balance. The Examiner again makes general references to Gu, however, to the extent that any feedback control is shown in Gu, there is no suggestion of using the particular features recited by claims 4-5 in the particular combinations captured by Applicants' claims.

Regarding claim 8, claim 8 is an independent claim reciting a flourescent lamp electronic ballast including a power factor correction flyback circuit and an inverter ballast circuit, wherein the inverter ballast includes a self-oscillating resonant circuit including a pair of power transistors. The flyback converter is further used to create a DC bias for use by the power transistors. Again, Gu fails to describe the use of a PFC flyback converter in the particularly claimed arrangement, and also fails to describe the further detail of using the flyback converter to create a DC bias for use by power transistors in a self-oscillating resonant circuit of the inverter ballast.

For the reasons given above, the pending claims are believed to be patentable, Applicants respectfully request that the Examiner reconsider this application and allow the remaining claims.

Respectfully submitted,

ARTHUR T. NEMIROW ET AL.

By _____

Jeremy J. Curcuri
Reg. No. 42,454
Attorney for Applicant

Date: July 20, 2005

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351